

GIH WEIGHING IN ON OBESITY

*America's Growing
Health Epidemic*

ISSUE BRIEF NO. 11

BASED

ON A

GRANTMAKERS

IN HEALTH

ISSUE DIALOGUE

WASHINGTON, DC

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Foreword

On October 31, 2001, Grantmakers In Health (GIH) convened an Issue Dialogue in Washington, DC, on the problem of obesity and its implications for personal and public health. The purpose of this meeting was to help the staff and trustees of health foundations and corporate giving programs understand the nature of today's epidemic and explore ways in which they could play a role in identifying and promoting effective solutions. In addition to discussing the scope and implications of overweight and obesity in the United States, presenters and discussants provided insights into the strategies that grantmakers might want to consider to address this serious health problem.

This Issue Brief incorporates the information and ideas shared during the meeting into the background paper which was prepared for participants at the Issue Dialogue. It offers detailed data on the prevalence and growth of overweight and obesity in various populations, discusses their impact on health and the costs of care, reviews the major causes, and suggests strategies for both prevention and treatment. In the context of those strategies, this report also profiles a number of efforts by both grantmakers and government agencies to tackle some of the root causes of this important public health issue.

GIH would like to acknowledge everyone who participated in this Issue Dialogue, with special thanks to the presenters: Terry L. Bazzarre,

Ph.D., senior program officer at The Robert Wood Johnson Foundation; William H. Dietz, M.D., Ph.D., director of the Division of Nutrition and Physical Activity, National Center for Chronic Disease Prevention and Health Promotion, Centers for Disease Control and Prevention; Gwendolyn Foster, health and fitness czar for the Philadelphia Mayor's Office for Health and Fitness; Barbara J. Moore, Ph.D., executive director of Shape Up America!; Ann G. Pauli, president and CEO of Paso del Norte Health Foundation; Tom Robinson, M.D., M.P.H., assistant professor of pediatrics at Stanford University School of Medicine; David Satcher, M.D., Ph.D., Surgeon General of the United States; and Susan G. Zepeda, Ph.D., executive director of The HealthCare Foundation for Orange County.

Lauren LeRoy, Ph.D., president and CEO of GIH, moderated the session. Julia Tillman, program associate at GIH, was responsible for planning the program and writing the background paper. Lise Rybowski of The Severyn Group produced this Issue Brief based on the background paper and the material shared at the meeting. Other contributors to the final report include Anne Schwartz and Leslie Whitlinger of GIH.

Support for the meeting and for this report was provided by the Maternal and Child Health Bureau, Health Resources and Services Administration.

About GIH

Grantmakers In Health (GIH) is a nonprofit, educational organization dedicated to helping foundations and corporate giving programs improve the nation's health. Its mission is to foster communication and collaboration among grantmakers and others, and to help strengthen the grantmaking community's knowledge, skills, and effectiveness. Now celebrating its 20th year, GIH is known today as the professional home for health grantmakers, and a resource for grantmakers and others seeking expertise and information on the field of health philanthropy.

GIH generates and disseminates information about health issues and grantmaking strategies that work by offering issue-focused forums, workshops, and large annual meetings; publications; continuing education and training; technical assistance; consultation on programmatic and operational issues; and by conducting studies of health philanthropy. Additionally, the organization brokers professional relationships and connects health grantmakers with each other as well as with others whose work has important implications for health. It also develops targeted programs and activities, and provides customized services on request to individual funders. Core programs include:

- **Resource Center on Health Philanthropy.** The Resource Center monitors the activities of health grantmakers and synthesizes lessons

learned from their work. At its heart are staff with backgrounds in philanthropy and health whose expertise can help grantmakers get the information they need and an electronic database that assists them in this effort.

- **The Support Center for Health Foundations.** Established in 1997 to respond to the needs of the growing number of foundations formed from conversions of nonprofit hospitals and health plans, the Support Center now provides hands-on training, strategic guidance, and customized programs on foundation operations to organizations at any stage of development.
- **Building Bridges with Policymakers.** GIH helps grantmakers understand the importance of policy to their work and the roles they can play in informing and shaping public policy. It also works to enhance policymakers' understanding of health philanthropy and identifies opportunities for collaboration between philanthropy and government.

GIH is a 501(c)(3) organization, receiving core and program support from nearly 200 foundations and corporate giving programs each year.

Table of Contents

Introduction	I
The Scope of the Problem	3
The Health and Economic Costs	8
The Causes of Overweight and Obesity	11
Strategies for Prevention and Treatment	15
Conclusion: What Can Grantmakers Do?	27
Sources	30

Introduction

The prevalence of overweight and obesity among Americans has reached epidemic proportions. More than 60 percent of adults are either overweight or obese, and at least 13 percent of children are overweight. Moreover, the prevalence of obesity has increased dramatically in recent years. Since the 1970s, the proportion of adults who are overweight or obese has grown by about 20 percent. Even more alarming, the proportion of children who are overweight tripled during the same time period. This sharp increase in overweight among children is especially troubling because overweight in childhood is clearly associated with subsequent overweight and obesity in adulthood and its attendant health problems.

Obesity has a complex set of causes. Although genetics may determine if a person has a propensity for obesity, interrelated nutritional, behavioral, and environmental factors seem to play the most significant role. Most of the increase in obesity over recent decades has been attributed to the fact that Americans are eating more, eating higher calorie foods, and exercising less.

Obesity has become an urgent concern in the health care community because people who are overweight or obese have an increased risk for developing diabetes, heart disease, hypertension, cancer, and many other chronic conditions. Furthermore, health problems that have previously been associated with adults, such as type 2 diabetes and heart conditions, are increasingly prevalent among children who are overweight. In addition to being a crisis for personal health, overweight and obesity impose tremendous costs on the nation's health care delivery system, with estimates ranging as high as \$117 billion annually.

The seriousness of this problem is attracting national attention. In December 2001, the U.S. Office of the Surgeon General issued *The Surgeon General's Call to Action to Prevent and Decrease Overweight and Obesity*. The *Call to Action* seeks to engage leaders from government, health care organizations, schools, communities, worksites, media, and foundations to address this critical public health issue. The document outlines priorities which provide a framework for all types of organizations, including foundations, to consider their role and take action. In addition, *Healthy People 2010* reflects a high level of concern about the implications of this problem for public health, both in its Leading Health Indicators and in the diseases that have been identified as priorities for eliminating disparities in health across racial and ethnic groups.

The dramatic growth in the prevalence of obesity and its relationship to multiple chronic health conditions make this an important public health issue for grantmakers to consider. Working with communities, schools, families, and medical professionals, grantmakers can make a significant contribution. Potential roles for grantmakers include publicizing the issue and its concomitant health problems, promoting healthy behaviors, helping to create environments that are supportive of physical activity and healthy eating, and building the base of knowledge about prevention and treatment strategies for obesity.

To help grantmakers better understand the ramifications of overweight and obesity for personal and public health as well as the opportunities for them to support effective solutions, Grantmakers In Health (GIH) held an Issue Dialogue on the topic on October 31, 2001. During this meeting, a variety of presenters from the public and private sectors provided an in-depth look at what is known about overweight and obesity and the strategies that have

.....
*Unless we do something
 about overweight and obesity,
 we'll see it overtaking tobacco
 as a major risk factor in
 this country.*

DAVID SATCHER,
 U.S. SURGEON GENERAL,
 OCTOBER 2001

OBESITY TOPS NATIONAL PREVENTION AGENDA

Healthy People 2010 is the prevention agenda for the nation.¹ Issued by the U.S. Department of Health and Human Services (DHHS), it is a statement of national health objectives designed to identify the most significant preventable threats to health and to establish national goals to reduce these threats. It can be used by states, communities, professional organizations, and others to help develop programs that improve health. *Healthy People 2010* builds on initiatives pursued by the Surgeon General and DHHS over the past two decades.

New to *Healthy People 2010* is the creation of the Leading Health Indicators, modeled on the Leading Economic Indicators which signal peaks and troughs in the business cycle. The indicators will be used to measure the health of the nation over the next 10 years; and as a group, they reflect the major health concerns in the United States at the beginning of the 21st century. The Leading Health Indicators were selected on the basis of their ability to motivate action, the availability of data to measure progress, and their importance as public health issues.

The Leading Health Indicators are:

- physical activity,
- overweight and obesity,
- tobacco use,
- substance abuse,
- responsible sexual behavior,
- mental health,
- injury and violence,
- environmental quality,
- immunization, and
- access to health care.

achieved positive outcomes in the short term. Equally importantly, they discussed the questions that remain unanswered: What changes in the environment really make a difference? How can changes in behavior be maintained over the long term? What combination of strategies will be required to actually reverse this alarming trend?

In this Issue Brief, which expands upon the paper distributed to participants in the Issue Dialogue, grantmakers will find background information as well as ideas for ways to get involved. The first section of this brief defines overweight and obesity and offers data on the

prevalence and growth of this problem. The second section reviews the health risks and costs associated with overweight and obesity, illustrating why this personal condition constitutes such a significant threat to the public's health. The third section discusses two of the primary causes of obesity, both of which point to potential solutions. Lastly, the final section suggests strategies for tackling the problem by effecting changes in personal behaviors and public environments. It also provides multiple examples of how grantmakers, government agencies, and other organizations have applied these strategies in a variety of settings.

¹*Healthy People 2010* is available online at www.health.gov/healthypeople/document/.

The Scope of the Problem

What is the justification for saying that the problem of overweight and obesity is an epidemic? This section explains how the prevalence of the condition is determined and presents the rationale for this assertion.

Defining Overweight and Obesity

The most common method for determining whether adults and children are either overweight or obese is based on a measure called the body mass index (BMI).

$$\text{Body mass index} = \frac{\text{Weight in pounds} \times 703}{\text{Height in inches}^2}$$

For adults, overweight is defined as having a BMI greater than or equal to 25. This cut-off point was recently lowered from 27 in light of the growing body of evidence suggesting that overweight is a primary risk factor for disease. Adults with a BMI greater than or equal to 30 are considered obese.

BMI is regarded as useful because it correlates with adipose tissue in adults. It is not equally meaningful for everyone, however. BMI can overestimate body fat for people who are unusually muscular from exercise, and it can underestimate body fat in people who have lost muscle mass due to age or disease.

Because the BMI for children is supposed to increase as they grow, an overweight classification cannot be based on a single number; rather the determination of whether a child is overweight is a function of age- and sex-specific percentiles based on the Growth Charts for the

United States as issued by the Centers for Disease Control and Prevention (CDC) in May 2000.² Children with a BMI above the 95th percentile for their age and sex are considered overweight. Those between the 85th and 95th percentile are considered at risk of being overweight. For children, there is not an accepted definition for obesity that is distinct from overweight. Obese and overweight are often used interchangeably, but both refer to children who are above the 95th percentile.

Measuring Overweight and Obesity

Two data sources are commonly used to describe the prevalence and growth of overweight and obesity: the Behavioral Risk Factor Surveillance System (BRFSS) and the National Health and Nutrition Examination Survey (NHANES).

The BRFSS is a random telephone survey conducted by the CDC in conjunction with state health departments. The resulting data set includes BMI calculations from the self-reported height and weight of adults ages 18 and older. The strength of this data set is that it includes state-level data and, therefore, allows for comparisons across regions of the country and states. It does not, however, include children, and the self-reported data may not be fully reliable since BMI is sensitive to accurate measurement of weight and height.

The data source that most obesity research is based on is NHANES, a continuing surveillance system conducted by the CDC's National Center for Health Statistics. NHANES collects data through physical examinations that involve interviews and clinical measurements. The survey has included children who are as young as 2 months and adults up to the age of 74.

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For a 5'4" woman, a BMI greater than or equal to 30 means she weighs more than 175 pounds. For a 6' man, [it] would mean that he weighed more than 220 pounds.

WILLIAM H. DIETZ,
CENTERS FOR DISEASE
CONTROL AND
PREVENTION,
OCTOBER 2001

.....

²CDC Growth Charts are available online at www.cdc.gov/growthcharts.

AN OVERVIEW OF THE NHANES DATA SETS

Between the early 1970s and the mid-1990s, the CDC developed four multiyear data sets. Three are part of the National Health and Nutrition Examination Survey (NHANES) series, which include data on the health and nutritional status of the general population. The fourth, the Hispanic Health and Nutrition Examination Survey (HHANES), was conducted to get more specific data for Mexican Americans, Cuban Americans, and Puerto Ricans.

The first three NHANES surveys and the HHANES survey sampled large numbers of people over several years. Beginning in 1999, the NHANES program was changed to become a continuous annual survey of approximately 5,000 people, with data available for each individual year.

	Survey Years	Sample Size
NHANES I	1971–1975	28,000
NHANES II	1976–1980	28,000
HHANES	1982–1984	16,000
NHANES III	1988–1994	40,000
NHANES 1999	1999	5,000

One concern about NHANES is that the information on children is not as comprehensive as the data on adults available from the BRFSS.

In particular, because the NHANES data set is based on a nationally representative sample of the population, the data cannot be used to pinpoint which states currently have the greatest number of overweight children or where new cases are emerging. This makes it harder to target resources where they are most needed. One way to resolve this issue would be to expand NHANES into every state. Some experts believe that while a larger survey may be expensive, the expense should be considered in the context of the national health care costs associated with childhood obesity.

The CDC has released NHANES data for 1999 and BRFSS data for 2000; these represent the most current statistics on overweight and obesity in the United States.

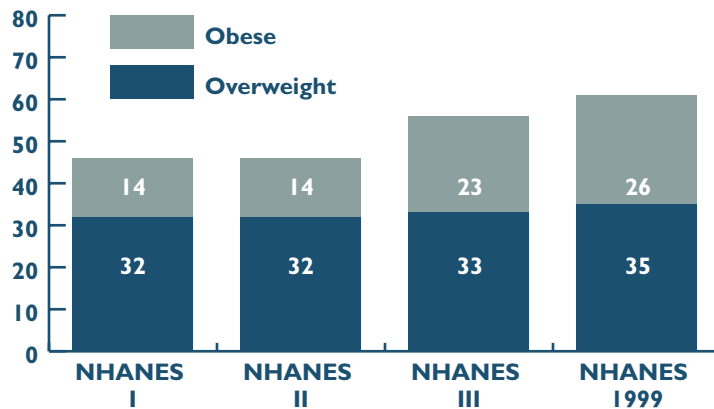
The Prevalence and Growth of Overweight and Obesity in the United States

A substantial proportion of Americans are overweight or obese, and the numbers are growing steadily. Depending on the data source, the magnitude of this epidemic varies somewhat, but both major data sets show a steady increase in BMI for both sexes and across age groups, races, and educational levels.

Adults

NHANES 1999 data indicate that 61 percent of adults are either overweight or obese. This is up from 55 percent in NHANES III and 46 percent in both NHANES II and NHANES I. When data for overweight and obesity are separated, the results show that the most dramatic growth is in obesity. While the proportion of adults who are overweight has increased by only about 3 percentage points, from 32 percent to 35 percent, the proportion who are obese has almost doubled, rising from 14 percent to 26 percent – or approximately 45 million people.

Figure I. *The Increase in Overweight and Obesity Among Adults*



Data from the BFRSS also reflect an increase in the proportion of adults who are obese. These data show that the prevalence of obesity rose from 12 percent in 1991 to about 20 percent in 2000. While these numbers are significantly lower than the NHANES data, it is important to note that the BFRSS data for BMI index are based on self-reported height and weight. Consequently, this data could substantially understate the scope of the problem if many people reported their weight inaccurately.

Children

Overweight and obesity are clearly a problem in children as well. NHANES 1999 data reveal that about 13 percent of children ages 6 to 11 and 14 percent of adolescents ages 12 to 19 are overweight. These proportions are significantly lower than the figures for adults, but what is most striking is the increase in prevalence over the last 25 years. For children, the proportion who are overweight has more than tripled from about 4 percent in NHANES I to 13 percent in NHANES 1999. For adolescents, the proportion has more than doubled from about 6 percent to the current level of 14 percent. This is especially troubling because one-third of adult obesity cases begin in childhood, and today's overweight children and adolescents are likely to remain obese as adults.

Disproportionate Impact on Subgroups

While the prevalence and growth of obesity are significant across ethnic groups, age groups, and genders, there are notable differences in the impact of this epidemic.

Gender. Among adults, women are more likely to be obese, while men are more likely to be overweight. NHANES III found that 60 percent of men were overweight versus 50 percent of women. That study also determined, however, that obesity was a problem for 25 percent of women and 20 percent of men.

Age. In adults, the prevalence of obesity increases with age, perhaps because many adults become less physically active as they grow older. This is true for each age bracket up until the 65- to 74-year-old group; among this group, the prevalence of overweight and obesity begins to decline. The most elderly, those ages 75 and over, are among the least likely to be overweight or obese. This may be due in part to the fact that obese people die earlier, and adults over age 65 are more likely than younger adults to be undernourished.

Race and Ethnicity. The prevalence of overweight and obesity is generally higher for racial and ethnic minorities than it is for whites. This

is true for both adults and children, with more variation seen among women than men. BRFSS data for 2000 reveal that obesity is found in almost 30 percent of African Americans, slightly fewer than one-quarter of Hispanics, and only 18 percent of whites. Among the states with the greatest disparity between whites and African Americans are Connecticut, the District of Columbia, and Nebraska. The states with the greatest disparity between whites and Hispanics are Arizona, Colorado, and Ohio.

For children and adolescents, NHANES data show that African-American girls are more likely to be obese than white or Mexican girls. Mexican boys, however, are more likely to be obese than white or African-American boys. Among boys and girls of all ages, whites are the least likely to be obese.

Two additional studies further document the ethnic disparities in this epidemic. A recent analysis of the National Longitudinal Study of Youth found that 21.5 percent of African-American, 21.8 percent of Hispanic, and only 12.3 percent of non-Hispanic white youth in the study were overweight. Furthermore, the disparity is worsening. During the study period from 1986 to 1998, the overweight prevalence increased by more than 120 percent among African-American and Hispanic youth and by about 50 percent among white youth (Strauss and Pollack 2001).

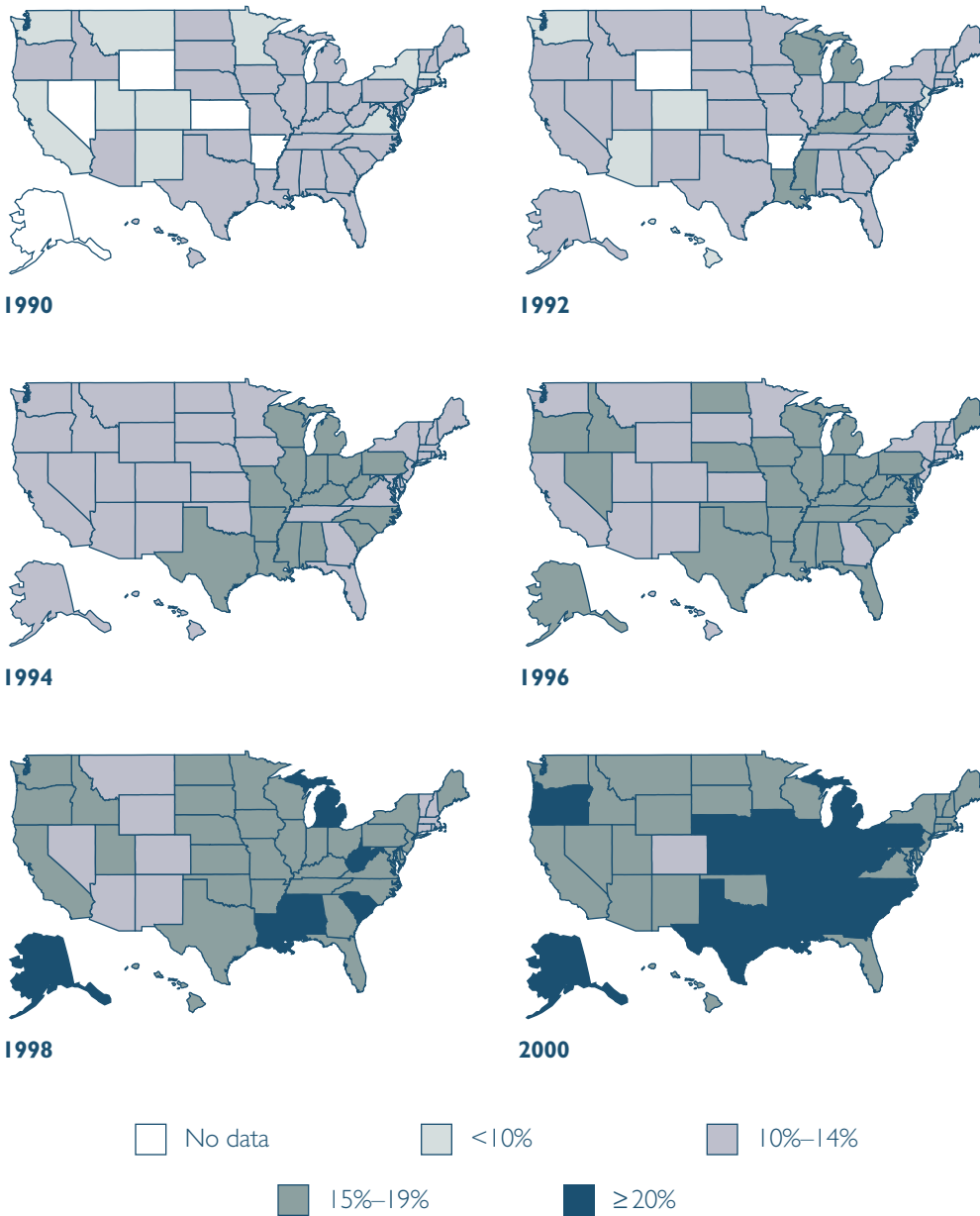
The high prevalence of obesity among the Mexican-American population was further documented in a 1998-1999 study of adolescent obesity in a low-income Mexican-American district in south Texas. In that study of more than 4,000 adolescent girls and boys, 22 percent were obese and another 18 percent were found to be at risk for obesity (Lancar et al. 2000).

Socioeconomic Status. Disparities are compounded when income is considered. The National Longitudinal Survey of Youth documents that the overweight prevalence among low-income African Americans and Hispanics was 27.4 percent while the prevalence among high-income whites was only 8 percent (Strauss and Pollack 2001). Also, according to BRFSS data for 2000, the prevalence of obesity decreases as educational level increases. Among adults who have not completed high school, 26 percent are obese. For those who have completed college, the obesity rate is 15 percent.

Geography. BRFSS data for 2000 show that all states except Colorado have obesity rates for adults greater than 15 percent, and 22 states have obesity rates greater than 20 percent. The states with the highest obesity rates are located predominantly in the southeastern region, with Alabama, Arkansas, Louisiana, Mississippi, Tennessee, and West Virginia leading the pack.

The maps on page 7, based on BFRSS data, show how the epidemic of overweight and obesity has literally spread across the country.

Figure 2. The Maps Tell the Story:
Proportion of Adults Who Are Obese (BRFSS, 1990–2000)



Source: Mokdad, 1999, 2001

The Health and Economic Costs

Why are public health leaders tracking a personal problem like overweight and obesity so closely? What makes this issue worthy of so much concern? It is not just the increased prevalence of overweight and obesity that draws attention, but the impact of weight problems on the health of the population, the demand for health care services, and overall health care costs. This section reviews evidence of the significant relationship between obesity and a host of chronic diseases and offers estimates of the national expenditures related to health care needs that are caused or exacerbated by overweight and obesity.

Obesity's Contribution to Chronic Disease

The prevalence and growth of obesity have gained national attention because of the relationship of obesity to health. Obesity is strongly associated with multiple chronic health conditions such as type 2 diabetes; hypertension and high cholesterol; coronary heart disease; breast, endometrial, and colon cancers; and stroke. Other diseases and health problems linked to obesity include gallbladder disease, osteoarthritis, gout, and breathing problems such as asthma and sleep apnea. The more severe the obesity, the greater the health problems.

In addition to increased morbidity, many studies have also found an increase in mortality rates associated with obesity. Individuals with a BMI of at least 30 have a 50 percent to 100 percent increased risk of death due to all causes compared to individuals with a BMI of 20 to 25 (National Institutes of Health 1998). Each year, as many as 300,000 deaths are attributed to overweight and obesity.

Type 2 Diabetes

The dramatic increase in obesity during the past decade has been accompanied by a 25 percent increase in the prevalence of type 2 diabetes mellitus, more commonly known as noninsulin-dependent diabetes. An estimated 14 million adults in the United States have type 2 diabetes. According to U.S. Surgeon General David Satcher, M.D., Ph.D., the relationship between obesity and diabetes is particularly striking: Data from NHANES III indicate that among those in whom type 2 diabetes has been diagnosed, 67 percent have a BMI of at least 27, and 46 percent have a BMI of at least 30 (Harris and Flegal 1998).

This is supported by at least two additional studies which found similar rates of obesity among adults with type 2 diabetes. In a study by Hu and his colleagues (2001) – which documented 3,300 new cases of type 2 diabetes in approximately 80,000 adults who were tracked for a 16-year period – overweight or obesity was the single most important predictor of diabetes, with 61 percent of the new cases attributed to weight problems. Wolf and Colditz (1998) also estimated that 63 percent of the cases of type 2 diabetes occur in people who are obese.

Type 2 diabetes is also on the rise among children and adolescents. Until recently, type 1 diabetes was the only type that was prevalent among children; only about 2 percent of children with diabetes were considered to have type 2 diabetes. According to the CDC's William H. Dietz, M.D., Ph.D., in some places type 2 diabetes now accounts for as much as half of the diabetes cases in children. And up to 85 percent of these children are either overweight or obese at the time of diagnosis (American Diabetes Association 2000).

In one study of 1,000 schoolchildren in Cincinnati, the prevalence of type 2 diabetes

increased from 4 percent in 1982 to 16 percent in 1994. Among adolescents with a new type 2 diagnosis, the mean BMI was 37 (Pinhas-Hamiel et al. 1996).

Hypertension, High Cholesterol, and Heart Disease

Obesity also has a strong association with coronary heart disease, presumably through its impact on cardiovascular risk factors such as high blood pressure and high cholesterol. Data from NHANES III suggest that the risk of high blood pressure increases with BMI. Hypertension was diagnosed in 38 percent of obese men and 32 percent of obese women, but only 18 percent of non-overweight men and 16 percent of non-overweight women. For both men and women, hypertension was the most common obesity-related health condition. Similarly, the prevalence of high blood cholesterol and the mean levels of cholesterol were higher in people with a BMI greater than 25, and rates of good cholesterol decreased as BMI increased (Must et al. 1999; Brown et al. 2000; National Institutes of Health 1998).

As with type 2 diabetes, hypertension is starting to occur more often in children. While the numbers remain relatively low, 60 percent of children with high blood pressure weighed more than 120 percent of the median for their sex, height, and age. Another analysis by Freedman and colleagues (1999) found that 60 percent of children who are obese have at least one cardiovascular disease risk factor, and 25 percent have two or more.

Finally, there is emerging evidence that overweight is a predictor of cardiovascular disease independent of other risk factors. Citing the contribution of obesity to the development of coronary heart disease, the American Heart Association recently added obesity to its list of major independent risk factors for this disease.

Cancer

Increased body weight is associated with increased risk for certain forms of cancer, including colon cancer, endometrial cancer, and postmenopausal breast cancer. An estimated 34 percent to 56 percent of cases of endometrial cancer are attributable to increased body weight. Almost half of breast cancer cases among postmenopausal women occur in those with a BMI greater than 29. In the Nurses' Health Study, women gaining more than 20 pounds from 18 years of age to midlife doubled their risk for breast cancer compared with women who maintained stable weight (Ballard and Swanson 1996; Huang et al. 1997).

Stroke

Overweight may also increase the risk for stroke. In the Nurses' Health Study, stroke risk was 75 percent higher in women with a BMI greater than 27 and 137 percent higher in those with a BMI greater than 32, compared with women who had a BMI of less than 21 (Rexrode et al. 1997).

Reproductive Function

In women, increased body weight is associated with menstrual irregularities and with infertility. Maternal obesity is a significant risk factor for the development of gestational diabetes mellitus, and it is associated with difficulties during labor and delivery (National Institutes of Health 1998).

Mental Health

Psychosocial consequences represent one of the most prevalent morbidities associated with obesity. While longitudinal studies have not been able to distinguish between cause and effect, depression and low self-esteem are clearly linked to obesity. Researchers from Columbia University in New York report that depression during childhood is associated with increased BMI in adulthood (Pine et al. 2001).

.....
*This growing epidemic ...
 could really, in my opinion,
 undo a lot of the progress that
 we've made in some areas,
 like the decline in deaths from
 cardiovascular diseases over
 the last 40 to 50 years, and
 over the last decade, a decline
 in cancer mortality.*

DAVID SATCHER,
 U.S. SURGEON GENERAL,
 OCTOBER 2001

Additional analysis by Shape Up America! indicates that childhood depression is also associated with increased BMI during childhood. Analysis of NHANES III data found that the percentage of adolescents meeting the criteria for major depression increased as the BMI category increased. In the highest BMI percentile group, depression affected 20.1 percent of boys and 30.7 percent of girls. While these data do not indicate the direction of causation, they do suggest that these children are under significant psychological duress.

Obesity also carries a social stigma, and discrimination against obese persons is common in both academic and work settings. Among adolescents, Falkner (2000) found that boys and girls who are obese were more likely to consider themselves poor students, less likely to hang out with friends, and more likely to think that their friends did not care about them. Among women who were obese as adolescents, education levels, average family incomes, and rates of marriage were lower. Similar relationships were not observed for men.

The Economic Cost of Obesity

The linkage between obesity and health status has important implications for the cost of medical care. The most recent data come from the Surgeon General's *Call to Action* (2001), which indicates that the total cost to the nation of overweight and obesity is \$117 billion annually, based on an estimate of \$61 billion in direct costs and \$56 billion in indirect costs. Direct costs include preventive, diagnostic, and treatment services related to overweight and obesity. Indirect costs include the value of wages lost by people unable to work because of illness or disability as well as the future earnings lost by premature death.

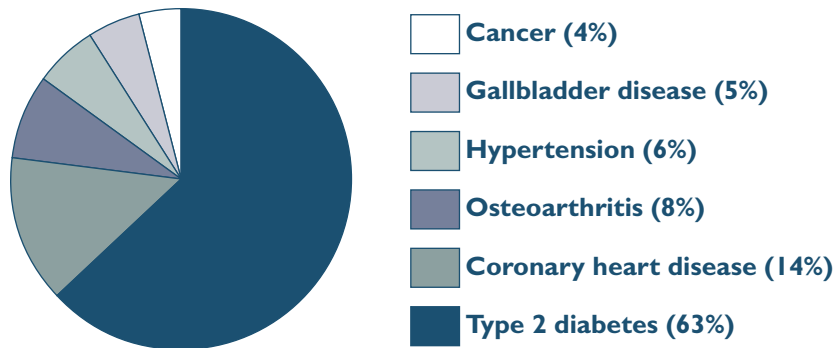
These figures are roughly consistent with estimates by Wolf and Colditz (1998) that the total annual cost of obesity-related conditions

exceeded \$100 billion annually. This included \$45.8 billion in direct costs, which represents 6.8 percent of all health care costs. Wolf and Colditz also estimated that more than 62 million physician visits per year were attributable to obesity and that the annual cost to employers exceeded 39 million days of lost work.

The magnitude of health care costs attributable to obesity is supported by multiple smaller scale studies that estimate costs associated with overweight and obesity in health plans. A recent study by Thompson and his colleagues (2001) found that for adult members of a managed-care plan in Portland, Oregon, overall medical care costs averaged 10 percent higher for people who were overweight and 36 percent higher for people who were obese. Another study by Quesenberry and colleagues (1998) estimated that health plan costs were 25 percent higher among patients who had BMIs between 30 and 35, and costs were 44 percent higher among patients who had BMIs greater than 35.

It is also worth noting that these estimates are based on the costs of treating insured patients; it is not known how much may be spent on treating obesity-related illness in the uninsured. Since the prevalence of obesity and obesity-related illnesses is higher among populations of lower socioeconomic status, the real costs associated with obesity may be significantly higher.

Figure 3. *How Obesity-Related Chronic Diseases Contribute to Direct Costs of \$45.8 Billion*



Source: Wolf and Colditz 1998

The Causes of Overweight and Obesity

While genetic makeup certainly has an influence on overweight and obesity, genetic factors alone cannot explain the drastic increase of this problem in recent years. Although obesity does tend to run in families, family members share not only genes but also diet and habits that clearly contribute to obesity. Separating these lifestyle factors from genetic ones is often difficult. Still, growing evidence points to environmental and behavioral factors related to diet and physical activity as the stronger determinants. Experts attribute most of the increase in obesity over the last decade to the fact that both adults and children are increasingly consuming more calories than they are expending in daily physical activity (Mokdad et al. 1999). This section reviews the challenges posed by poor nutrition and inadequate physical activity and explains why these problems have become so daunting in the past several years.

Poor Nutrition and Dietary Intake

According to the U.S. Department of Agriculture (USDA), Americans in the 1990s were

consuming more food and several hundred more calories per day than they did in the 1970s. Much of this observed increase in caloric intake can be associated with an increase in eating away from home. A study by McCrory and colleagues (1999) found that an increasing proportion of household food income was spent on food prepared away from home and that the frequency of consuming restaurant food was positively associated with being overweight. In many two-career families where there is no one at home to prepare healthy meals, warming up packaged foods, picking up fast food, or dining out has become the norm. Eating has also become a form of entertainment and a forum for socializing, as the number and variety of restaurants has mushroomed in recent years. As a result of these factors, the proportion of meals eaten outside the home has almost doubled in the past few decades. According to the USDA, food prepared away from home provided 34 percent of total food consumption in 1995, up from 19 percent in the late 1970s.

When eating out, people tend to either eat more or eat higher calorie foods than they do at home (Putnam 1999). In addition, as people spend more time and money eating away from home, their expectations regarding volume and value have created a demand for portion sizes

.....

The first thing that's clear is that this is not genetic, because the gene pool in the United States did not change over [a] 10-year period.

WILLIAM H. DIETZ,
CENTERS FOR DISEASE
CONTROL AND
PREVENTION,
OCTOBER 2001

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What's happened is that portion control has gone totally out the window. And children who grow up with supersized foods at their local fast-food restaurant have no concept of what a healthy portion is.

SUSAN ZEPEDA,
THE HEALTHCARE
FOUNDATION FOR
ORANGE COUNTY,
OCTOBER 2001

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that are not healthy. The increase in food service portion sizes over the past few decades is illuminating. In 1957, an average muffin was 1.5 ounces, compared to at least 5 ounces in 1997. A theater serving of popcorn was 3 cups in 1957, compared to 16 cups in 1997. And the average size of a soda was 8 ounces in 1957, compared to 32 ounces in 1997 (Putnam 1999). Noting that the cost of ingredients is nominal compared to the cost of providing service, Susan Zepeda, Ph.D., executive director of The HealthCare Foundation for Orange County, pointed out that one factor driving the increase in portion sizes in restaurants is that it allows owners to justify price increases without adding much to their overall costs.

Another important contributing factor is the proliferation of high-calorie, convenience foods. Americans are eating more fast foods and other foods that are high in fat and sugar content such as prepackaged foods, cookies, chips, candy, and soft drinks. Such foods are extensively marketed, relatively low in price, and

readily available in vending machines and convenience stores (Putnam 1999).

These problems are compounded among residents of low-income neighborhoods where there are often few options for grocery stores and limited access to fresh fruits and vegetables. Among the options that do exist, foods that are high in fat and sugar content tend to be relatively inexpensive compared to available healthy alternatives. In addition, restaurants that serve low-cost items tend to serve foods that are high in fat content. Access to nutritious foods can also be a major obstacle for the elderly, especially those who are institutionalized or severely disabled.

The same environmental factors and food supply issues that undermine adult health (e.g., more fast food, more soda, the dissolution of family meals, greater portion size) contribute to overweight in children. A recent complication is that unhealthy foods are becoming increasingly available at schools as school districts

SHIFTING THE FOCUS TO A SUSCEPTIBILITY GENE

According to William H. Dietz, M.D., Ph.D., genetics may not cause overweight and obesity, but could be a factor in making people predisposed to weight problems. The presence of a "susceptibility gene" is supported by the fact that the number of overweight individuals who are becoming heavier is increasing much faster than the number of people of normal weight who become overweight. This is also evident in children, where the median weight has remained fairly constant while the mean weight has increased.

As gene research becomes more sophisticated, one option could be to screen people for the presence of this susceptibility gene and then target therapies where they would be most effective. Dr. Dietz warned against this approach, however. First, he noted that it is unnecessary, since we already know that a majority of the population is at risk given the current extent of overweight and obesity among Americans. Perhaps more importantly, screening for a susceptibility gene has the potential to further stigmatize people who already have to deal with a number of social and physical handicaps. To Dr. Dietz, the greatest promise of genetic research may lie in its ability to explain how the human body regulates satiety and the expenditure of energy, which could lead to the development of more effective medications than are currently available.

RAISING THE STANDARD FOR EVERYONE

Referring to a survey of children ages 9 to 11 conducted by The California Endowment, Lauren LeRoy, Ph.D., president and CEO of Grantmakers In Health, pointed out that the number of Latino children who had access to vending machines in their schools was nearly double the number of white children who had access to vending machines – 20 percent compared to 11 percent. While this disparity was certainly striking, the fact that so many children of all races had access to such inappropriate foods is troubling in itself. She reminded grantmakers that the challenge is not to move some people up to suboptimal standards but to raise the bar for everyone.

enter into contracts with fast-food franchises and vending machine operators to enhance their revenue. Fast foods such as pizza, ice cream, and french fries are sold in about half of all public elementary schools and in three-quarters of middle and high schools. Sales from vending machines in American schools generated \$750 million in 1997 (California Food Policy Advocates). While many schools have argued that these contracts have become a vital source of revenue, they may very well be undermining the health of the children the schools are serving.

Overall, more than 60 percent of children and adolescents eat too much fat, and only one in five eats the recommended five daily servings of fruits and vegetables. Only slightly more adults – about one in four – eat the recommended fruits and vegetables (CDC 2001).

Inadequate Physical Activity

At the same time that caloric intake is increasing, there has been a decrease in physical activity and a corresponding increase in sedentary behaviors.

According to *The Surgeon General's Report on Physical Activity and Health* (1996), more than 60 percent of American adults do not engage in the recommended amount of activity, and

approximately 25 percent are not active at all in their leisure time. Many are increasingly entrenched in sedentary daily routines such as sitting at work, in traffic, and in front of televisions or computer monitors during most of their waking hours. Activity decreases with age; 34 percent of the population over 50 is sedentary. Among those ages 75 and above, 50 percent of women are sedentary, and about one-third of men are sedentary. Physical activity is also less common among those of lower income and less education.

And children are not doing much better. Data indicate that increasing numbers of children are not getting enough exercise. A study by Dowda and colleagues (2001) found that both male and female adolescents who participated in team sports or exercise programs were less likely to be overweight than those who did not participate. While schools are a critical outlet for sports and physical activity, however, many are having to make hard choices regarding the use of their programming dollars as public budgets become increasingly tight. In recent years, schools have moved away from offering physical education classes and extramural sports, instead targeting limited resources to academic programming. As a result, the daily participation of high school students in physical education classes at school dropped from 42 percent

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About 6 percent of an average

child's diet now is derived

from soda.

WILLIAM H. DIETZ,
CENTERS FOR DISEASE
CONTROL AND
PREVENTION,
OCTOBER 2001

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.....
*Anyone contemplating an
 inactive lifestyle should have a
 thorough physical exam to see
 if his or her body can
 withstand it.*

TERRY BAZZARRE,
 THE ROBERT WOOD
 JOHNSON FOUNDATION,
 OCTOBER 2001

in 1991 to only 29 percent in 1999. Only 56 percent are enrolled in a physical education class at all (CDC 2001).

Outside of school, sedentary habits are also increasingly common, partially driven by the fact that more parents are in the workforce and unable to provide supervision. In many communities, children have no choice but to stay home where they can be safe rather than play outside. In 1990, approximately one-third of adolescents watched five or more hours of television per day, up from just more than 10 percent in 1970 (CDC 2001). A study by Crespo and colleagues (2001) found that obesity is lowest among children who watch one or fewer

hours of television per day and highest among those who watch four or more hours per day.

Furthermore, American communities are not built to facilitate people getting more exercise. In recent decades, the infrastructure that supports walking and bicycling in many areas has been neglected; trips made by walking or cycling are down more than 40 percent in the last 20 years. In 1997, only 1 percent of all trips were made by bicycle, and 9 percent were made by walking; 84 percent were made in cars (CDC 2001). And many schoolyards, which used to provide a safe environment for play and exercise, are now chained off once the school

THE ABC'S OF THE DIETARY GUIDELINES

The connection between fitness and good nutrition is reflected in the "ABC's" of Dietary Guidelines that were issued in 2000 by the U.S. Department of Health and Human Services (DHHS) and the USDA; for the first time, fitness was incorporated as an important element.³ The Dietary Guidelines, which are revised every five years by a team of nutrition experts, serve as the basis for all federal nutrition information and educational programs in the United States. In 2000, the principles were built around three recommendations known as the ABC's:

Aim for fitness:

- Aim for a healthy body weight.
- Be physically active each day.

Build a healthy base:

- Let the pyramid guide your food choices.
- Choose a variety of grains daily, especially whole grains.
- Choose a variety of fruits and vegetables daily.
- Keep foods safe to eat.

Choose sensibly:

- Choose a diet that is low in saturated fat and cholesterol and moderate in total fat.
- Choose beverages and foods to moderate your intake of sugars.
- Choose and prepare foods with less salt.
- If you drink alcoholic beverages, do so in moderation.

³USDA Dietary Guidelines are available online at www.usda.gov/dgac.

THE ECONOMICS OF OBESITY

Several presenters at the Issue Dialogue noted that the environment in low-income communities can contribute significantly to weight problems. Referring to what she called the “economics of obesity,” Susan Zepeda, executive director of The HealthCare Foundation for Orange County, noted that many of the factors responsible for overweight and obesity are more potent in poor communities. For example, in many low-income communities, nutritious foods like fresh fruits and vegetables are expensive and hard to find, while unhealthy fast food is abundant and inexpensive. Access to parks and other free facilities (like schoolyards) is limited at best, and many schools lack exercise equipment and the kinds of team sports that are common in wealthier areas.

day is over because of potential liability concerns.

People living in lower income neighborhoods often have the most limited access to sites and equipment conducive to physical activity. A survey conducted by Shape Up America! in 1996 showed that a lack of neighborhood safety is also a barrier to increased physical activity among people living in urban areas. The problem was increasingly severe as household income decreased, and there was a significant correlation between increased BMI and lack of neighborhood safety.

Strategies for Prevention and Treatment

This section reviews several ways in which grantmakers could play a role in reducing the growth and prevalence of overweight and obesity. It begins with a quick description of two broad strategies for tackling this problem and then reviews how these strategies may be applied in various settings. For each, there is a discussion of possible interventions and examples of relevant initiatives sponsored by government agencies and grantmakers.

Approaches to Tackling Overweight and Obesity

Promoting healthy eating and regular physical activity is essential to reversing the trend of increased overweight and obesity and, therefore, to reducing the burden of chronic disease. Strategies to address overweight and obesity must address weight loss and weight maintenance for adults and children who are already overweight and strongly emphasize prevention among children. Since weight loss is more difficult to achieve once an adult is obese, preventing children from becoming obese is a critical health concern with long-term implications.

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The environment that we create at the schools, in the community, will either support programs to reduce overweight and obesity, or it will contribute to the problem.

DAVID SATCHER,
U.S. SURGEON GENERAL,
OCTOBER 2001

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Presenters at the Issue Dialogue agreed that successful interventions must take a multi-pronged approach – focusing on both changing the way people make choices about eating and exercise and on substantively altering the institutional, community, and public policy influences that affect the choices that individuals are able to make. Individual behavior change lies at the core of successful strategies to address overweight and obesity. Successful efforts must also, however, make it easier for people to make healthy choices by affecting the environments in which they live, work, and play. These strategies, which are clearly intertwined, recognize that overweight and obesity are primarily lifestyle problems and that people’s lifestyles are shaped by both the world around them as well as their personal beliefs, values, and habits.

Changing Personal Behavior

According to Tom Robinson, M.D., M.P.H., a pediatrician at Stanford University, strategies that emphasize behavioral change can be effective in improving the condition of people who are already overweight or obese or in preventing health problems by moving everyone – whether or not they are currently overweight – toward healthier lifestyles.

While some studies have demonstrated that the traditional health education model has not

been particularly effective, focusing on identifying and modifying the specific behaviors associated with risky and healthy eating may yield positive results. This approach may be especially useful when it targets families rather than individuals, since a parent’s behavior wields a strong influence on a child’s eating and exercise habits. Several speakers at the Issue Dialogue referred to studies indicating that interventions involving parents as well as children had a more profound impact on behavior than those limited to children only. This finding is consistent with the idea that behavioral change is more likely when individuals get social support, whether in their homes, schools, or neighborhoods.

Changing the Environment

A complementary approach is to consider how to alter the environment in a way that supports improved nutrition and more physical activity. While a better understanding of causality would be useful, there is ample evidence that changes in the home, school, community, and medical settings can alter the choices that are available to people, and thereby have an impact on how much and what people eat; how easily they can walk to school, shopping, or work; and how they use their free time.

PREVENTING OBESITY FROM DAY ONE

A mounting body of research suggests that the seeds of obesity may be planted – or prevented – as early as infancy. Breastfed babies, for example, are less likely than bottlefed babies to have weight problems later in life. Researchers have found a possible association between low birthweight and adult obesity; they also suspect that low-birthweight infants may be more susceptible to the complications of weight gain in adulthood, such as diabetes or cardiovascular disease. Other studies indicate that overweight in infants may be a precursor to weight problems in adulthood. These findings suggest that one way to prevent future cases of obesity would be to target messages to new parents.

PUBLIC HEALTH INFRASTRUCTURE AS A KEY ELEMENT OF THE COMMUNITY

To David Satcher, M.D., Ph.D., Surgeon General of the United States, the public health system bears some of the blame for failing to communicate the risks of obesity and the importance of lifestyle as it relates to nutrition and physical activity. Moreover, in most communities, the public health infrastructure is poorly designed to address chronic diseases, especially those that have deep roots in the environment. Not only has it contributed to risky behaviors, but it is not well positioned to contribute to a solution.

One way for grantmakers to help is to work with local public health systems to frame overweight and obesity as a public health issue and to assess their capacity to address this issue. To help communities assess their public health systems, the National Association for County and City Health Officials and the CDC have developed a communitywide strategic planning tool – Mobilizing for Action through Planning and Partnership (MAPP). The MAPP model leads communities through the process of assessing their strengths, understanding the issues that they think are important, identifying the organizations that contribute to public health, measuring the health status of their community, identifying forces of change, and implementing agreed upon activities. The MAPP tool is available at www.naccho.org.

Applying These Strategies in Multiple Settings

Interventions to help prevent and combat obesity can occur almost anywhere. In recent years, programs have tended to focus on the prevention of weight problems in children, but it is important not to ignore adults and the elderly. Public health experts also urge a greater emphasis on intervening with people who are already struggling with this problem. As Dr. Satcher noted, even people who are overweight can lower their risk for coronary heart disease, diabetes, and possibly cancer simply by increasing their level of activity and eating better. Studies have found that it is not necessary to aim for an ideal weight; modest goals can also be effective in achieving reductions in health problems.

Designing Community-Based Strategies

Because the problem of obesity is pervasive – affecting all segments of the population regardless of age, race, or gender – it should be viewed as a community problem that requires community-based interventions to bring about

change. Community-based programs can target individuals and families with messages regarding behavior change. They can improve the environments in which people live and work by developing safe and accessible opportunities for exercise and healthy eating. Community-based programs are versatile, able to involve churches, community centers, restaurants, after-school and weekend activities, athletic leagues, and home visits.

Various studies have identified strategies that can help make community-based interventions more effective. These include studying the community to pinpoint opportunities for change and engaging the community from the beginning to learn what kinds of activity are most likely to be embraced. In one study, for example, researchers learned that dancing had much more appeal to female participants than walking. Another useful approach is to support community groups and advocates that are already in a position to influence individual decisions.

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*Community sprawl may
 contribute to personal sprawl.*

WILLIAM H. DIETZ,
 CENTERS FOR DISEASE
 CONTROL AND
 PREVENTION,
 OCTOBER 2001

To help communities assess potential strategies, the CDC supports the Task Force on Community Preventive Services which uses an evidence-based process to identify effective strategies at the community level. The task force systematically reviews interventions and summarizes what is known about the effectiveness of different approaches to population-based prevention. Findings of the task force are summarized in *The Community Guide for Preventive Services*, which includes a section on physical activity.⁴

Some important lessons for grantmakers are seen in the multifaceted approach adopted by the Paso del Norte Health Foundation in El Paso, Texas, which has developed several community-based programming initiatives that emphasize physical activity and healthy food choices. Obesity is a major health issue in the border region served by the foundation, which includes two counties in Texas, two counties in New Mexico, and Ciudad Juarez, Mexico, with a total population exceeding 3 million. According to the BRFSS, 75 percent of adults in El Paso are sedentary, 33 percent are obese, and only 7 percent consume five or more servings of fruits and vegetables daily. Another troubling finding is the fact that 8 percent of Hispanics in the region have been diagnosed with diabetes, and there is a strong likelihood that even more people have diabetes that has not yet been diagnosed.

One element of the foundation's initiative is the Physical Activity Grants program. The program has provided small grants for creative interventions such as promoting walking among the elderly and among people with diabetes and high blood pressure, installing an exercise course and promoting it within the community, and developing a communitywide media campaign to promote physical activity.

The foundation also supports a separate five-year initiative, Walk El Paso, designed to provide information, inspiration, and opportunities for people to adopt walking as a fun, free, and safe form of exercise. Specifically, it encourages people to walk 20 minutes a day, 3 days a week. The program was first implemented in El Paso but has recently been expanded into surrounding counties. To develop and carry out the program, the foundation worked closely with different community agencies, including the local YMCA and faith organizations.

So far, the response of the community has been positive. In the three years of sponsoring a community walk called the Mariachi Mile, participation has increased from approximately 1,500 individuals to more than 9,000. The program has also had a measurable impact in El Paso County: between 1999 and 2001, walking increased by 60 percent for women and by 57 percent for men.

Paso del Norte is also reaching out to the community through the Que Sabrosa Vida (What a Delicious Life) program, an effort to change the way area residents choose the food they eat by promoting moderation and providing realistic models for selecting and preparing food. This bilingual nutrition intervention program involved different agencies in the community; the University of Texas at Houston School of Public Health, for example, helped to develop the program. Its goals are to increase awareness of a lifestyle built around healthy nutrition and physical activity and to promote positive, realistic ways to make better food selections. The initiative includes:

- a public awareness campaign for mass media, restaurants, and grocery stores;

⁴*The Community Guide for Preventive Services* is available online at www.thecommunityguide.org.

- interactive classes and cooking demonstrations to help disadvantaged families learn more about planning, budgeting, purchasing, preparing, saving, and sharing family meals (for example, local chefs share ways to prepare healthier versions of traditional recipes); and
- a community gardens program to reconnect city residents with the land and teach children about food sources.

The program also sponsored the development of the *Que Sabrosa Vida Guide to Healthy Living*, which incorporates the local traditions and culture into the USDA's nutrition pyramid.

Another example comes from The Kate B. Reynolds Charitable Trust in Winston-Salem, North Carolina. Through an initiative called the SELF (Smoking, Education, Lifestyle, Fitness) Improvement Program, the Trust is supporting 16 projects designed to lower chronic disease rates in low-income areas across North Carolina. The program targets those populations at greatest risk for chronic disease and provides education through community health advocates who are trained to conduct behavioral modification classes related to physical activity, nutrition, and tobacco use. To help transform the environments in which people

make behavioral choices, SELF projects employ a wide variety of activities such as:

- analyzing policies of local schools for vending machines and school menus,
- purchasing ovens to replace fryers in school cafeterias,
- developing walking trails and walking programs for residents of low-income neighborhoods,
- working with local vendors to increase low-fat and high-fiber foods for sale at their establishments,
- recruiting restaurants to participate in a program to increase the number of healthy items offered on their menus, and
- forming advisory committees at churches to provide nutritionally appropriate food choices at church events.

The Mary Black Foundation in Spartanburg, South Carolina, has also developed a community-driven initiative. Its goal is to address the prevalence of coronary heart disease, malnutrition, illiteracy, and adolescent pregnancy – four areas where South Carolina is among the worst in the country – in Spartanburg County, which has a population of about 260,000. While obesity is not the primary focus of this initiative, it is clearly related to both coronary heart disease and nutrition.

KEYS TO SUCCESS

The Paso del Norte Foundation shared some of the lessons it has learned about what makes its initiatives successful:

- an emphasis on community input, including involvement in developing program evaluations;
- a major research effort to establish a baseline of data for developing and implementing programs and for evaluating results;
- sensitivity to cultural traditions and language; and
- awareness of barriers and myths that must be overcome before progress can be made.

This fairly recent initiative is oriented toward encouraging behavioral change. For example, the foundation's nutrition initiative brought together four teams of volunteers who cooperated in developing an action-oriented social marketing campaign called Think It, Do It, Live It, which was launched in January 2002. In one application of this campaign, children will be urged to think about what foods they like and the choices they make and then be supported in planning and implementing their own strategies for improving those choices.

In an example of how technology can be used to facilitate outreach into hard-to-access communities, the Hoffman-La Roche Foundation has awarded a grant to the University of South Carolina (USC) to implement a weight-loss and weight-management pilot program for rural communities. Known as the Tele-POWER Project, this community health outreach program was created to address the high incidence of cardiovascular disease, stroke, diabetes, and cancer in rural populations. It used telecommunications technology to deliver both educational sessions and individual counseling to promote behavior modification.

The study was launched in rural Lake City, South Carolina, where the USC School of Medicine partnered with the CHS-Lake City Hospital. Using closed-circuit televisions, 60 participants referred by local physicians met weekly in smaller groups with weight-management interventionists. The interventions provided culturally appropriate and gender-sensitive education about lifestyle changes, the health benefits of a low-fat, low-calorie diet, and the health risks associated with being overweight and obese. The nutritionists also used the telehealth system to counsel each participant individually.

The results of the study suggested that the participants were responsive to the use of the tele-

health medium. The average weight loss during the study period was 17 pounds, and many participants indicated changes in their behavior, their level of knowledge, and their feeling of well-being.

Finally, an example from a local government comes from Richmond, Virginia, where the Department of Public Health has developed the ROCK! Richmond program to address physical inactivity and obesity. The program included fitness instruction at community centers around the city, a media campaign advocating healthy eating habits and physical activity, and efforts to encourage city employees to engage in healthy lifestyles with their families and friends. At a conference attended by government leaders, health care providers, and fitness industry representatives, The Robert Wood Johnson Foundation highlighted this program as a model local initiative for promoting fitness. Conference attendees were invited to submit applications for grant funding to start similar local programs.

Developing School-Based Interventions

Because life-long health habits are generally established in childhood, schools provide an ideal setting to improve the nation's health. Through the physical education curriculum, extramural activities, health education (i.e., the classroom curriculum), and the school lunch program, school-based obesity programs offer the opportunity to reach a large number of children, especially younger children, on a daily basis for a number of years. School programs also have the potential to initiate health education services for peer groups, families, and school staff.

Even though most program evaluations have not been able to show that school-based programs affect body fat levels in the long term, we know that these programs do make a difference. For example, environmental changes that

PHILADELPHIA TAKES CHARGE OF ITS DESTINY

In 1999, the city of Philadelphia found itself on top of *Men's Fitness* magazine's annual list of America's fattest cities. Rising to the challenge, Mayor John Street declared that obesity is not just a personal health problem but one of the community at large, and he decided to launch the Fun, Fit, and Free initiative. The focal point of this initiative was the *76 Tons of Fun* campaign, a 10-week program sponsored in part by the Philadelphia 76ers, which took on the goal of helping city residents lose a total of 76 tons. More than 20,000 people registered for the campaign, which included mass public weigh-ins, public walks around the city, and a Web site that listed weekly health and fitness challenges and provided online charts to track progress.

Social support played a critical role in these programs. Participants were urged to use the buddy system – which has been associated with greater success in weight loss – and the city has certified and trained “lifestyle coaches” across the city who are active in creating walking clubs. The city has also made environmental changes by installing walking trails and bike lanes.

The Fun, Fit, and Free initiative also involves reaching out to community organizations, employers, and health clubs to provide more opportunities for exercise and encouraging restaurants to offer healthier entrees. Chefs at the culinary arts school have worked with area restaurants to offer menu choices that are lower in fat. The program also offered access to a free cooking school, with classes available throughout the city. Finally, the city partnered with health care providers to develop the Fun, Fit, and Free – See What You Can Be initiative, which is an intensive two-week program that focuses on improving the lifestyles of people with chronic disorders. The initial focus of this initiative was diabetes.

One important element of this program has been its emphasis on partnerships between the city and local organizations, including the American Heart Association, the American Diabetes Association, and the Salvation Army. The city devoted a year to developing these partnerships to ensure that the program would be sustainable and would last after the mayor's term in office ended.

The program also applied social marketing techniques to develop and communicate its message, which was concise, creative, consistent, and doable. The city widely publicized 10 simple principles using inexpensive materials and high-profile messengers, including the mayor, sports figures, and local television personalities.

We're teaching people that yes, they [may] have faulty genes, but faulty genes only load the gun – it's lifestyle that pulls the trigger.

GWENDOLYN FOSTER,
CITY OF PHILADELPHIA,
OCTOBER 2001

affect food service have been successful in changing what students eat. Changes in physical education have encouraged physical activity and improved the level of fitness. But school-based programs must be redesigned. Since it takes an intense level of activity to have an impact on body fat, the traditional physical education curriculum may need to be rethought.

But schools have begun making trade-offs that may undermine their efforts. The most com-

mon example of this is the use of contracts with fast-food and soda companies to generate revenues for the school. Efforts to dissuade schools from these contracts must recognize that these programs are often an important source of income that is used to support athletic teams and other activities.

With these caveats in mind, this section offers several profiles of school-based programs.

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*One child said, "Dear Dr.
 Satcher, I know that you've
 put warnings on tobacco, but
 are you sure that our school
 lunch is safe?"*

DAVID SATCHER,
 U.S. SURGEON GENERAL,
 OCTOBER 2001

In addition to its multiple community-based programs, the Paso del Norte Health Foundation is targeting serious weight problems among local children by supporting a seven-year school-based program with \$4.2 million in funding. The Coordinated Approach to Child Health (CATCH) initiative was developed in partnership with area school districts to promote healthy eating habits and increased physical activity in elementary school children. The program, which provides a standardized health promotion curriculum in the region's elementary schools, has been implemented in more than 80 elementary schools and reaches approximately 52,000 students and their families. The program's training and technical assistance – offered to the staff, teachers, and students of the 83 participating schools – includes physical education programs where all students are active, nutritional education for food services staff and children, and family involvement.

The CATCH program helped to spur recent legislation by the Texas Senate which requires each school district to implement a Coordinated Health Program in each elementary school. This legislation became effective at the beginning of the 2001-2002 school year; however, it was an unfunded mandate so it is not clear whether the schools will be able to comply.

In another example of a school-based intervention, the Kansas Health Foundation has been a major force in changing the face of physical education in Kansas schools. Almost 10 years ago, the foundation provided the state department of education with a challenge grant to develop and implement a new physical education curriculum for high schools that de-emphasizes team sports and focuses instead on keeping kids moving and developing skills to maintain a physically active lifestyle. The program has been implemented in 40 percent of public high schools in the state. Because of the

success of the program, the foundation has provided additional funding to develop a curriculum for middle schools that also incorporates physical activity into classroom learning.

A third example is offered by The HealthCare Foundation for Orange County, which has provided funding to a hospital and a community-based organization to work through schools to curb the rate of obesity among children. Orange County has one of the highest obesity rates in California, and the foundation has become especially concerned about obesity's role as a risk factor for diabetes. Its initiatives are shaped in part by research led by the countywide Children and Weight Task Force, which has also sponsored other activities in the county such as a television turnoff campaign and a walk-to-school program.

In one initiative, the foundation has linked a local hospital, a community group called Latino Health Access, and four elementary schools in a primarily Latino community. The objective has been to level the playing field with respect to knowledge about diabetes by educating parents, teachers, and school administrators about obesity, diet, and exercise and to engage the participants in developing appropriate strategies. This group first focused on getting a better understanding of the nutrition offered by schools and the choices that children are making. The participants then looked for ways to reshape school policy and after-school opportunities so that the children would be able to exercise more and eat better. For example, one intervention involves a local community college, whose students come to supervise children in outdoor activities after school.

One important aspect of this initiative is that the foundation is looking for ways to engage organizations and groups that are obvious but reluctant partners, such as the religious community, the food service industry, and the city

and county recreation departments' staffs. This approach has been to invite these groups to share their knowledge and expertise without requiring them to contribute any financial support to the initiative. This relatively small foundation has also reached far beyond the four schools by creating a media buzz around the issue of obesity through an editorial in the *Los Angeles Times* and coverage on local television stations and in the Spanish press.

The California Wellness Foundation is also supporting school-based projects related to obesity by improving the nutritional value of school food services. In one initiative, the foundation has given a small grant of \$300,000 over three years to Occidental College, which links farmers' markets to local schools. The farmers deliver fresh produce, which the schools offer in a salad bar prepared in part by the parents. The program also sponsors trips to farmers' markets for the children. In light of its initial success in Santa Monica, the idea is now being adopted by the Los Angeles Unified School District. The foundation has also established a similar program for child care centers in low-income communities.

In an example of how the public sector gets involved at this level, the CDC is supporting 20 states to coordinate health education programs targeting inactivity and unhealthy eating in schools. It has also developed guidelines and materials to assist schools in promoting healthy eating and physical activity. As a part of this program, the CDC has developed model policies, curricula, and training to assist states in implementing high-quality school health programs. The agency also supports the Kids Walk-to-School Program, which encourages children to walk to and from school in groups accompanied by adults. This program works with communities to build partnerships across schools, parent-teacher associations, and departments of public works to create environ-

ments that are supportive of walking and bicycling to school safely.

A final example of a school-based program comes from the Stanford University School of Medicine, which coordinated an intervention as part of a study with third and fourth graders to reduce television watching. In this program, regular classroom teachers led their students through a self-assessment of television use and a discussion of alternative activities they found enjoyable. The students agreed to go without television for 10 days, then learned to budget their use of television, videotapes, and video games. Finally, the students became advocates for reduced television use for other children, which required them to think through and communicate which strategies worked best for them.

In addition to reducing television use, the treatment group experienced a substantially smaller increase in BMI than the children in a control group. This means that, on average, the children in the treatment group gained about two pounds less than those in the control group during the intervention period of seven months. It is not clear, however, if this outcome is a result of reduced eating or increased activity.

Addressing Weight in the Medical Setting

Recognizing the linkage between obesity and overall health, the medical setting provides an important venue for prevention and treatment efforts. Prevention and treatment of obesity in the primary care setting should take on the same level of importance as efforts to address its health consequences – diabetes, hypertension, high cholesterol, and other chronic conditions. Recent data from the CDC (2001), however, indicate that 58 percent of obese patients did not receive counseling about weight loss from their health care providers. Since most health plans do not cover this kind of counseling,

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If you calculate the cost of putting the 45 million [obese adults] on one of the currently existing medications [for] about \$1,000 a year, [it totals] about \$45 billion, which is [close to the medical cost of treating] obesity. It's kind of a paradox that this problem is too expensive to treat and too expensive not to treat.

WILLIAM H. DIETZ,
CENTERS FOR DISEASE
CONTROL AND
PREVENTION,
OCTOBER 2001

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there is little incentive for busy physicians to invest time in weight control interventions. This is despite the fact that obese patients who are counseled to lose weight are almost three times more likely to try to do so than patients who are not counseled (Galuska 1999).

The HealthCare Foundation for Orange County is supporting work in a medical setting through a grant to the Children's Hospital of Orange County, which has a number of clinics serving low-income families. Practitioners in these clinics are reviewing charts to identify families with overweight and obese children and using focus groups with these families to determine what kinds of programs might be feasible for the children and for the entire family.

The Robert Wood Johnson Foundation is also concerned about the evidence that primary care physicians are missing the opportunity to help patients develop healthy behaviors. Based on feedback from providers about the barriers they face and their thoughts on how they can best help their patients, the foundation will be developing a new \$20 million grant program in partnership with professional organizations and public agencies such as the Agency for Healthcare Research and Quality, the CDC, and the National Institutes of Health (NIH).

The Hoffman-La Roche Foundation is working with the medical community to address the barriers to health care awareness caused by low literacy and high poverty as well as lack of time and patient motivation. It has awarded a grant to the Louisiana State University Health Science Center to facilitate the management of obesity in public hospitals by creating culturally sensitive, relevant, and motivating materials and resources for patients with limited literacy skills. Developed in collaboration with target patients and providers, these materials include an easy-to-read pamphlet with information and

empowering messages, a small pocket-sized reference card for providers (*Five Easy Things to Say to Patients About Obesity*), and a motivational videotape that encourages patients to lose weight.

Another example is offered by a major health plan. After finding a direct association between BMI and annual rates of outpatient visits and inpatient days, Kaiser Permanente of Northern California decided to tackle this issue aggressively. Its Get More Energy campaign is providing training and clinical guidelines to the plan's providers on identifying and counseling patients who are obese or at risk of becoming obese. The program is also conducting member education and working with schools to integrate health education materials into their curricula.

To assist and encourage health care providers to address obesity with their patients, agencies of the DHHS have developed treatment guidelines and resource materials for health professionals and others who are addressing the prevention and treatment of obesity in the medical setting.

For example, as a part of its *Bright Futures* series, the Health Resources and Services Administration's Maternal and Child Health Bureau has developed health supervision tools related to both nutrition and physical activity. Each *Bright Futures* volume presents guidelines and tools to be used by health professionals as well as educational resources for families and communities. *Bright Futures in Practice: Nutrition* provides guidance to physicians, nurses, dietitians, and nutritionists on working with children and their families to promote healthy eating. *Bright Futures in Practice: Physical Activity* provides similar guidance to health pro-

professionals on how they can play a role in promoting physical activity.⁵

In 1998, NIH published *The Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults: The Evidence Report*.⁶ Topics addressed in the *Clinical Guidelines* include the health risks associated with overweight and obesity, as well as the assessment, treatment, and management of overweight and obese patients. This report targets primary care practitioners and provides evidence of the effects of treatment on overweight and obesity. It is based on a review of the published scientific literature which addresses key clinical questions on how different treatment strategies affect weight loss and how weight control affects the major risk factors for heart disease and stroke.

The guidelines have been endorsed by the coordinating committees of the National Cholesterol Education Program and the National High Blood Pressure Education Program, the North American Association for the Study of Obesity, the NIH Task Force on the Prevention and Treatment of Obesity, and the American Heart Association. These groups represent professional societies, government agencies, and consumer organizations.

Expanding Knowledge Through Research

There is a tremendous need for further research. First, much is unknown about the association of certain behaviors with obesity; researchers still have to link specific behaviors to the prevalence of overweight and obesity. There is also a paucity of knowledge about what works. To remedy that problem, grant-makers could support small-scale efficacy trials that test methods for behavioral or environmental change. Those that seem promising

should then be tested in large-scale trials to determine how efficacious methods can be translated into public health interventions and how they can be disseminated. Formal evaluations of the impact of different kinds of interventions are also needed to justify public health expenditures. Finally, experts in overweight and obesity pointed to the need for long-term outcomes studies to see if people maintain changes in their behavior over time.

Currently, several federal agencies are supporting data collection on obesity and research on the role of physical activity and nutrition in health. The CDC continues to collect and analyze annual data from the BRFSS and NHANES for trends related to the prevalence and growth of obesity. The agency is also working on research projects related to environmental conditions and levels of physical activity and on developing better methods to measure physical activity levels. Research by NIH has focused on the role of genes and metabolism in obesity, the relationship between obesity and various medical conditions, and ways to define and treat the various types of obesity.

Several foundations have also taken a lead in this area. In 1998, The Robert Wood Johnson Foundation supported the publication of a special supplement to *Pediatrics* (the journal of the American Academy of Pediatrics) on the topic of childhood obesity. The supplement included commissioned articles on the health consequences of obesity, the reasons for the recent increase in obesity, and strategies for preventing obesity. The editors of the volume reviewed the papers and recommended future research priorities. Research needs that were identified include improving the methods for assessing childhood obesity, documenting how obesity affects socialization, describing how eat-

⁵*Bright Futures in Practice* guidelines are available online at www.brightfutures.org.

⁶*NIH Clinical Guidelines* are accessible online as an electronic textbook at www.nhlbi.nih.gov/guidelines/obesity/e_txtbk/index.htm.

ing and physical activity patterns develop, and evaluating techniques to treat and prevent obesity.

In 1999, The California Endowment conducted the California Children's Healthy Eating and Exercise Practices Survey with 9- to 11-year-old school children in the state. A preliminary analysis of the data, presented as a special report in September 2000, reveals that about one-third of children in the survey were either overweight or at risk of becoming overweight. The study also found that overweight children drank more sodas, ate more snacks and fast food, spent more time watching television, and were less likely to participate in sports.

Providing National Leadership

At the national level, The Robert Wood Johnson Foundation (RWJF) has developed a new grantmaking focus on promoting healthy communities and lifestyles. The foundation's goal is to increase the number of communities amenable to healthy living within 10 years. To that end, RWJF is developing a national program known as PAPERI (Physical Activity Policy and Environmental Research Initiatives), which is focused on identifying the environmental factors that influence physical activity. In order to promote environmental changes that encourage active living, this initiative will aim to identify and document successful model programs that incorporate active community design as a way to improve health. To inform this effort, the foundation commissioned a paper and convened leaders in community design to recommend strategies for reintegrating physical activity into communities. It is now establishing a national program that will include community models, technical assistance to promote physical activity, and the cultivation of "health champions" – local leaders who become engaged in redesigning their communities. Over time, the foundation also hopes to

develop a set of community report cards with empirically-based indicators of livability.

Another RWJF national initiative is aimed at promoting physical activity among older adults. As adults age, their level of activity tends to decrease. At the same time, they tend to have greater knowledge of the benefits of physical activity, which suggests that knowledge alone is not enough. The program to promote physical activity among older adults will be based on the recommendations from the foundation's report, *National Blueprint: Increasing Physical Activity Among Adults Age 50 and Older*. Recommendations for overcoming barriers to physical activity among older adults included identifying active communities and their effect on the quality of life for older Americans, designing health assessments to help communities measure how well they meet the health needs of older citizens, and developing incentive programs for states, communities, and workplaces to increase physical activity among older adults. The program will combine grants to partners at the local level, a social marketing campaign, technical assistance, and possibly a resource center.

The CDC is also leading multiple efforts across the country to prevent obesity by promoting nutrition and physical fitness. In 2000, the CDC initiated a program to support state health departments to develop nutrition and physical activity interventions in an effort to prevent obesity and associated chronic diseases. States are using social marketing techniques to design population-based strategies. Six states received funds in the program's first year, and an additional six states received funding in 2001. Funded states include California, Colorado, Connecticut, Florida, Massachusetts, Michigan, Montana, North Carolina, Pennsylvania, Rhode Island, Texas, and Washington.

Through this program, states are developing public education campaigns, conducting community inventories and needs assessments, coordinating statewide task forces and strategic planning processes, enhancing surveillance and monitoring systems, and implementing pilot interventions in communities.

The Office of the Surgeon General has also taken important leadership in this area. As noted earlier, *The Surgeon General's Call to Action to Prevent and Decrease Overweight and Obesity* was issued in December 2001.⁷ The *Call to Action* seeks to engage leaders from government, the private sector, communities, schools, the media, and grantmakers to take action to address this urgent issue. Strategies outlined in the report provide a framework for all organizations, including foundations, to assess their own roles and design strategies that can effect change.

Conclusion: What Can Grantmakers Do?

While few health grantmakers now focus specifically on obesity, tackling this emerging epidemic is one way for funders to improve the health of their communities – whether they focus on policy or practice, or work on the national, regional, or local level. Since grantmakers work in different capacities in their communities, there are a number of ways in which they could go about addressing this issue. Some possibilities are highlighted here.

Raise Awareness

Grantmakers can conduct campaigns to raise obesity prevention as a priority to be addressed by educators, community leaders, families, health care providers, and payers. They can also invest in social marketing efforts to educate people about the benefits of weight loss by communicating messages and strategies that help effect behavioral change. For example, funders can use their own prominence in the community to cultivate high-visibility participants and spokespersons. They can also raise the profile of this issue by developing media campaigns.

Invest in Model Programs

Grantmakers can sponsor programs focused on changing both individual lifestyles and the economic, cultural, and physical environments that promote activity and healthy eating. These changes may be ambitious but they can also be surprisingly simple, like the use of point-of-decision prompts that remind people about healthier alternatives such as using stairs instead of elevators or drinking water instead of soda. School-based programs can create more

⁷ *The Surgeon General's Call to Action* is available online at www.surgeongeneral.gov/topics/obesity/.

U.S. SURGEON GENERAL ISSUES CALL TO ACTION

The Surgeon General's Call To Action To Prevent and Decrease Overweight and Obesity, released in December 2001, recommends the following activities as national priorities.

Communication

The nation must take an informed, sensitive approach to communicate with individuals, families, communities, and schools about the consequences of overweight and obesity and about balancing healthful eating and regular physical activity.

- Change the perception of overweight and obesity at all ages. The primary concern should be one of health and not appearance.
- Educate all expectant parents about the many benefits of breastfeeding. Breastfed infants may be less likely to become overweight as they grow older, and mothers who breastfeed may return to prepregnancy weight more quickly.
- Educate health care providers and health professions students in the prevention and treatment of overweight and obesity across the life span.
- Provide culturally appropriate education in schools and communities about healthy eating habits and regular physical activity for people of all ages, based on the Dietary Guidelines for Americans. Emphasize the consumer's role in making wise food and physical activity choices.

Action

Every sector should support specific interventions and activities that will help to encourage the behaviors and create the environments that can affect overweight and obesity.

- Ensure daily, quality physical education in all school grades. Such education can develop the knowledge, attitudes, skills, behaviors, and confidence needed to be physically active for life.
- Reduce time spent watching television and in other similar sedentary behaviors.
- Build physical activity into regular routines and playtime for children and their families. Ensure that adults get at least 30 minutes of moderate physical activity on most days of the week. Children should aim for at least 60 minutes.
- Create more opportunities for physical activity at worksites. Encourage employers to create facilities and opportunities for physical activity for all employees.
- Make community facilities available and accessible for physical activity for all people, including the elderly.
- Promote healthier food choices, including at least five servings of fruits and vegetables each day, and reasonable portion sizes at home, in schools, at worksites, and in communities.
- Ensure that schools provide healthful foods and beverages on school campuses and at school events by: (1) enforcing existing USDA regulations that prohibit serving foods of minimal nutritional value during mealtimes in school food service areas, including vending machines; (2) adopting policies specifying that all foods and beverages available at school contribute toward eating patterns that are consistent with the Dietary Guidelines for Americans; (3) providing more food options that are low in fat, calories, and added sugars such as fruits, vegetables, whole grains, and low-fat or nonfat dairy foods; and (4) reducing access to foods high in fat, calories, and added sugars and to excessive portion sizes.
- Create mechanisms for appropriate reimbursement for the prevention and treatment of overweight and obesity.

Research and Evaluation

Organizations need to invest in research that builds our understanding of the causes of overweight and obesity and of best practices for preventing and decreasing their incidence.

- Increase research on behavioral and environmental causes of overweight and obesity.
- Increase research and evaluation on prevention and treatment interventions for overweight and obesity, and develop and disseminate best practice guidelines.
- Increase research on disparities in the prevalence of overweight and obesity among gender, socioeconomic, age, and racial and ethnic groups, and use this research to identify effective and culturally appropriate interventions.

opportunities for physical activity, involve children in making nutritious choices, improve and expand participation in school meal programs, or limit access to vending machines and fast foods. Grantmakers may also want to invest in the development of models that are based on health teams or lay health workers in addition to physicians.

Partner with the Community to Change the Environment

Working with agencies of local government and community groups, grantmakers can contribute to the development of environmental changes that encourage physical activity, such as sidewalks, bicycle trails, and fitness equipment in public parks. In addition to providing funding, they can also play an important role by convening groups that share a common interest in this issue, including faith organizations, public health officials, schools, and even farmers. Finally, they can work with the local government to identify relevant gaps in the public health infrastructure and seek appropriate solutions. Funders that pursue this approach do not have to start from scratch: they can take advantage of existing models and a variety of resources.

Support Research

Grantmakers can provide a valuable service by investing in research on unanswered questions. Possibilities include data collection on weight and habits at the community and state level, data gathering and surveillance for specific sub-populations, research to relate dietary patterns and activity to obesity, and evaluations of different interventions, with an emphasis on long-term effects. It is especially critical to document the outcomes of interventions for both prevention and treatment.

Incorporate Obesity into Other Prevention Programming

Finally, since prevention strategies related to obesity use many of the same techniques as other population-based prevention programs, grantmakers could also consider opportunities for integrating obesity prevention strategies into existing prevention programs that target families, schools, and communities. The key will be to recognize that overweight and obesity represent a long-term problem that will require a multifaceted approach and, most importantly, a sustained commitment.

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This is not going to be a quick fix. This problem has developed over years for us as a nation. It's going to take years to change the whole setting, the environment, and all the other things that continue to contribute to overweight and obesity.

DAVID SATCHER,
U.S. SURGEON GENERAL,
OCTOBER 2001

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